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UTAH FLORA: SAXIFRAGACEAE

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ABSTRACT.— A revision of the Saxifragaceae is presented for the state of Utah. Included are 41 taxa in 12 genera. Keys to genera and species are provided, along with detailed descriptions, distributional data, and comments. *Lithophragma glabra* Nutt. in T. & G. var. *ramulosa* (Suksd.) Goodrich is the only new combination proposed. No new taxa are proposed.

This is another in a series of works leading to a definitive treatment of the flora of Utah. The Saxifragaceae family is of rather small size in the state. Several taxa are cultivated as ornamentals, and some species of *Ribes* are grown for their fruit. For the most part the taxa seem to be well marked, and separation of taxa is rarely compounded by hybridization in the native species of this family. The arabic numerals following the discussion of each taxon indicate the number of Utah specimens examined by me in the preparation of this treatment. The Roman numerals indicate the number of specimens I have collected from Utah.

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SAXIFRAGACEAE

Saxifrage Family

Perennial herbs or shrubs; leaves basal, alternate, or opposite, with or without stipules; flowers perfect, regular, solitary to many and racemose or cymose; sepals, petals, and stamens borne on a floral cup or hypanthium; hypanthium saucer or cup shaped or tubular, sometimes small or essentially lacking; sepals 4 or 5, often appearing as lobes of the hypanthium, petal-like in *Ribes*; petals 4 or 5, distinct, alternate with the sepals; stamens (4), 5, 8, 10, or more; ovary superior, partly inferior, or inferior; fruit a capsule, follicle, or berry. This is an extremely variable family. As treated herein it includes segregates sometimes regarded as belonging to the Grossulariaceae (*Ribes*) and Parnassiaceae (*Parnassia*). Our woody species with opposite leaves have been included in Hydrangiaceae and in Philadelphaceae.

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1. Plants shrubs, woody well above ground level 2
- Plants herbaceous, sometimes with woody caudices at or below ground level 7
- 2(1). Leaves alternate, lobed and toothed; petals shorter than the sepals, not over 4 mm long, often similar in texture and color to the sepals; ovary inferior; fruit a berry *Ribes*
- Leaves opposite, entire or toothed; petals longer than the sepals, over 4 mm long (except in *Fendlerella*), of contrasting texture and color from the sepals; ovary not completely inferior; fruit a capsule 3
- 3(2). Stamens numerous (more than 10); petals 4 (or sometimes more in cultivated plants) *Philadelphus*
- Stamens 8 or 10; petals 4 or 5 4
- 4(3). Leaves toothed, with petioles 2–10 mm long, or rarely sessile; petals 5, 4–13 mm long; stamens 10 5
- Leaves entire, sessile, or the petiole 1–2 mm long; petals 4 and 13–20 mm long, or 5 and only 2–4 mm long; stamens 8 or 10 6
- 5(4). Flowers rather numerous, paniculate; ovaries and sometimes the petals stellate-pubescent; filaments often petaloid and bifid apically; plants introduced, cultivated *Deutzia scabra* Thunb.
- Flowers few, in small cymes; ovaries sericeous-canescens; petals glabrous; filaments hardly petaloid, sometimes dilated basally, not bifid apically; plants indigenous; leaves sericeous-canescens *Jamesia*
- 6(4). Petals 4, 13–20 mm long; stamens 8; styles 4; leaf blades 9–30 mm long, the lower surface without pustulate hairs; shrubs ca 1–2 m tall, of Grand and San Juan counties *Fendlera*
- Petals 5, 2–4 mm long; stamens 10; styles 3; leaf blades 4–12 mm long, the lower surface sometimes with pustulate hairs; shrubs to ca 1 m tall, of other distribution *Fendlerella*
- 7(1). Leaves all basal, distinctly and often abruptly petioled, not lobed more than $\frac{1}{2}$ the distance to the midrib; flowers on naked scapes or the scapes with a solitary bract; stamens 5 or 10 8
- Leaves not all basal, or sometimes so in depauperate plants but then the blades not distinctly petioled or else lobed more than $\frac{1}{2}$ the distance to the midrib; flowers often not scapose; stamens 10 12
- 8(7). Flowers solitary and terminal on long scapes with a solitary bract; petals 6–14 mm long; leaves not toothed, sometimes cordate, otherwise not lobed; fertile stamens 5 *Parnassia*
- Flowers not solitary; scapes without bracts; petals 2–4 mm long; leaves either toothed or lobed or both and sometimes cordate as well; fertile stamens various 9
- 9(8). Leaves peltate, the blades 5–40 cm wide, cupped in the center; petioles and scapes to 10 dm long or more *Peltiphyllum*
- Leaves not peltate, the blades to 10 cm wide, not cupped in the center; petioles not over 2.5 dm long; scapes less than 7.5 dm long 10
- 10(9). Flowers in simple, very narrow, elongate, spikelike, ebracteate racemes; petals parted or divided into filiform segments; leaves toothed and lobed; stamens 5; plants from rhizomes, not clothed at the base with persistent leaf bases *Mitella*

- Flowers not in spikelike racemes, or if so then bracteate; petals entire; leaves not both toothed and lobed and stamens 5, or if so then plants from woody caudices and clothed at the base with persistent leaf bases 11
- 11(10). Leaves crenate-toothed and lobed; stamens 5; stipules fused to and decurrent on the petioles; plants often of dry rocky places *Heuchera*
- Leaves subentire, crenate, or very coarsely dentate but not lobed; stamens 10; stipules lacking or free of the petioles; plants mostly of dry meadows or wet places *Saxifraga*
- 12(7). Leaves parted or divided to the midrib the basal ones abruptly constricted into slender petioles 0.5–10 cm long; petals deeply lobed or cleft, with 3–7 lobes; plants from slender bulblet-bearing rhizomes and fibrous roots .. *Lithophragma*
- Leaves entire, toothed, or lobed, but not divided more than $\frac{1}{2}$ the distance to the midrib or if so then sessile or nearly so; petals entire; plants not or rarely from bulblet-bearing rhizomes 13
- 13(12). Leaf blades of basal and stem leaves crenate-toothed (the teeth more than 10), also shallowly lobed, reniform or orbicular; bracts of inflorescence smaller than the leaves, but similarly toothed; petals pink to deep red; floral cup 4–7 mm long, often reddish or purplish; plants of the Bear River Range *Boykinia*
- Leaf blades entire, toothed, or lobed (the teeth or lobes 8 or fewer); upper leaves and bracts entire; petals yellow or white, sometimes with purple markings; floral cup 1–3 mm long, greenish or purplish; plants variously distributed *Saxifraga*

Boykinia Nutt. Nom. Cons.

Caulescent, glandular herbs from woody branched caudices and thick scaly rootstocks; leaves petioled, basal, and alternate, with membranous stipules; flowers perfect, regular, borne in compact, few-flowered, bracteate cymes; hypanthium calyxlike; sepals 5; petals 5; stamens 10; ovary ca $\frac{1}{2}$ inferior; styles 2, free or connate below; fruit a capsule; seeds several.

Boykinia jamesii (Torr.) Engl. James Saxifrage. [*Saxifraga jamesii* Torr.; *Telesonix jamesii* (Torr.) Raf.; *Therefon heucheriforme* Rydb.; *Boykinia heucheriformis* (Rydb.) Rosend.] Perennial caulescent herbs, 6.5–20 cm tall; caudices clothed with broad marcescent leaf bases; stems hirsute and stipitate-glandular; petioles 1.5–5.5 cm long, glandular; leaf blades 12–60 mm wide and about as long, reniform or orbicular, truncate or cordate at the base, crenate and more or less shallowly lobed; bracts similar to the upper leaves but smaller and less toothed, and the upper ones usually entire; hypanthium 4–7 mm long, campanulate, glandular to pilose-glandular, often reddish or purplish; sepals 3–4.5 mm long, glandular; petals subequal to the sepals

or shorter, pinkish or reddish. Crevices, often in limestone at 2680 to 2990 m in the Bear River Range, Cache Co.; Idaho and Montana to Colorado; and southern Nevada (Spring Mts.); 6 (0). Our plants are referable to var. *heucheriformis* (Rydb.) Engl.

Fendlera Engelm. & Gray

Shrubs with opposite, nearly sessile leaves without stipules, deciduous; flowers perfect, rather showy; hypanthium calyxlike; sepals 4; petals 4; stamens 8, the filaments flattened, lobed at the apex; ovary inferior at the base, 4-loculed; styles 4; stigmas minute; fruit a capsule, over $\frac{1}{2}$ superior, septicidal; seeds few in each locule.

Fendlera rupicola Gray Cliff Fendlerbush. [*F. tomentosa* Thorneb.]. Much branched shrubs about 1–2 m tall; bark of twigs longitudinally ridged and grooved, reddish or strawcolored, turning gray; leaves opposite or appearing fasciculate-opposite, 9–30 mm long, 2–7 mm wide, lance-linear, linear, elliptic, or less often ovate, entire, sometimes slightly revolute, sparingly strigose on both sides, the midrib prominent, grooved above, ridged beneath; flowers solitary or 2–3

together at the ends of short branches; hypanthium 2–3 mm long; sepals 3–5 mm long, to 8 mm in fruit, persistent, strigose beneath, tomentose-villous above; petals 13–20 mm long, constricted to a narrow claw, the blade to 11 mm wide, white; staminal filaments ca 6–8 mm long, to 2 mm wide at the base, 2-lobed at the apex, the lobes 2–3 mm long, the anther shorter or longer than the lobes; styles 4, appearing as 2 at anthesis, glabrous or with multicellular hairs; capsules 8–15 mm long. Blackbrush and pinyon-juniper communities at 1372 to 1707 m in Grand and San Juan counties; west central Colorado and south-eastern Utah through Arizona and to Texas; 11 (0).

Fendlerella Heller

Shrubs with opposite, sessile, or nearly sessile leaves, lacking stipules; flowers perfect, in small compound cymes; hypanthium calyxlike; sepals 5; petals 5; stamens 10, the filaments dilated below the narrow apex; ovary about $\frac{1}{2}$ inferior, 3-loculed; styles 3; fruit a capsule, septicidal; seeds 1 in each locule.

Fendlerella utahensis (Wats.) Heller Utah *Fendlerella*. [*Whipplea utahensis* Wats.]. Sprawling or ascending, much branched shrubs to 1 m tall; bark of twigs strigose, whitish, exfoliating in milky or translucent stripes or flakes; leaves 4–12 mm long, 1–6

mm wide, linear-oblongate, linear, elliptic, or less commonly ovate, entire, slightly revolute, strigose, the hairs sometimes pustulate, especially on the lower surface; flowers in small compound cymes; hypanthium inconspicuous at first, finally to 2 mm long in fruit, turbinate-campanulate; sepals 1–1.5 mm long; petals 2–4 mm long, white; staminal filaments dilated and petaloid just below the narrow apex, white; styles ca 1.5–2 mm long; capsules 3–4 mm long. Sagebrush, pinyon, juniper, and mountain brush communities, mostly on sandstone and sandy soil at 1480 to 2135 (2745) m in Garfield, Millard, Uintah, Utah, and Washington counties; north-western Colorado to Arizona and west to California; 17 (0).

Heuchera L.

Perennial scapose herbs from scaly, somewhat woody branched caudices or rootstocks; leaves basal, stipulate; flowers paniculate or racemose or nearly spicate, bracteate, perfect, regular; hypanthium calyxlike; sepals 5; petals 5, small, entire, usually clawed; stamens 5; ovary partly inferior, 1-loculed; styles 2; fruit a capsule, opening between the 2 more or less divergent styler beaks; seeds many.

ROSENDAHL, C. O., F. K. BUTTERS, AND O. LAKELA. 1936. A monograph on the genus *Heuchera*. Minnesota Stud. Pl. Sci. 2: 1–180.

1. Stamens shorter than the sepals; petals ca 1–2 mm long; sepals not reddish or pinkish; pedicels 1–2 mm long or nearly obsolete; plants statewide *H. parvifolia*
- Stamens exerted 1–4 mm beyond the sepals; petals 3–4 mm long; sepals often pinkish or reddish; pedicels (1) 2–7 mm long; plants of the Great Basin and the southern $\frac{2}{3}$ of Utah *H. rubescens*

Heuchera parvifolia Nutt. in T. & G. Littleleaf Alumroot. [*H. utahensis* Rydb. Type from Salt Lake County.] Scapose glandular herbs, the caudex branches clothed with marcescent leaf bases, 12–71 cm tall; scapes stipitate-glandular; petioles 1–13 cm long, with stipules glandular-puberulent or glabrate; leaf blades (1) 1.5–6.5 cm wide, wider than long, orbicular or reniform, cordate, palmately lobed with 3–7 primary lobes, these crenate and usually again shallowly lobed, commonly with scattered stipitate glands below, glabrate above and sometimes throughout;

flowers in open or congested panicles or sometimes racemose or spicate, bracteate, the bracts toothed or fimbriate; inflorescence 2–35 mm long; pedicels obsolete or 1–2 mm long; hypanthium 2.5–3.5 mm long or to 5 mm in fruit; sepals 0.5–1 mm long, sometimes yellowish; petals ca 2 mm long, white; stamens shorter than the sepals; capsules 4–7 mm long. Pinyon, juniper, sagebrush, mountain brush, ponderosa pine, aspen, grass-forb, Douglas-fir, and white fir communities, often in rocky places at 1675 to 3200 m in all counties except Kane, Morgan, and Sevier;

Alberta to New Mexico and west to Idaho and Nevada; 96 (v). Our plants are referable to var. *utahensis* (Rydb.) Garrett.

Heuchera rubescens Torr. in Stansb. Red Alumroot. Scapose perennial herbs, 5–30 (53) cm tall, the stem bases clothed with marcescent leaf bases; scapes glabrous to sparingly glandular-puberulent; petioles 1–6 (8) cm long, glabrate, glandular-puberulent, or hirsute, the stipular bases often fimbriate; leaf blades 0.7–4.3 cm wide, slightly longer than wide to wider than long, orbicular to broadly ovate, cordate or truncate, palmately lobed, the primary lobes sometimes again shallowly

lobed, dentate or crenate, hirsute-ciliate; flowers in racemose or spicate panicles, the inflorescence 3–18 (31) cm long; pedicels (1) 2–7 mm long; hypanthium 2–4 mm long, campanulate, pinkish, lavender, or whitish; sepals 1–2.5 mm long, or to 3.5 mm long in fruit, mostly pinkish or lavender; petals 3–4 mm long, white; stamens exerted ca 1–4 mm beyond the sepals; capsules ca 4–6 mm long. There are two varieties in Utah, which more or less show morphological and geographical correlation. However, in the Henry Mountains, Mountain Home Range, and probably elsewhere the morphological differences fail.

1. Petioles hirsute, the spreading hairs to 2 mm long; leaf blades and scapes tending to be glandular-puberulent *H. rubescens* var. *versicolor*
- Petioles not hirsute, merely puberulent; leaf blades and scapes less often glandular-puberulent *H. rubescens* var. *rubescens*

Var. *rubescens* [*H. versicolor* Greene f. *pumila* Rosend, Butters, & Lakela]. Crevices of rock outcrops and other rocky places, in pinyon, juniper, sagebrush, mountain brush, ponderosa pine, limber pine, bristlecone pine, aspen, fir, and spruce communities at (1525) 1825 to 3355 m in Beaver, Box Elder, Cache, Garfield, Grand, Millard, Piute, Salt Lake, Sanpete, Tooele, Utah, Wayne, and Weber counties; Great Basin, from southeastern Oregon and adjacent Idaho to California, east to northern Arizona, and western Colorado; 59 (viii).

Var. *versicolor* (Greene) M. G. Stewart [*H. versicolor* Greene] Pinyon, juniper, mountain brush, and spruce-fir communities, often on rock outcrops, at 1370 to 2590 m in Garfield, Iron, Kane, San Juan, and Washington counties; Arizona, western New Mexico, and southeastern Nevada; 16 (0). In addition to the hirsute petioles, var. *versicolor* is reported to have filaments not noticeably flattened toward the base and attached at or slightly below the point of attachment of the petals. These features appear to be weakly, if at all, correlated in Utah materials. Our plants might represent intermediates between var. *rubescens* and the more southern var. *versicolor*, or perhaps the distinction is so tenuous as to be of little taxonomic value.

Jamesia T. & G.

Shrubs; leaves opposite, mostly petioled, without stipules; flowers perfect, regular, cy-

mose; hypanthium calyxlike; sepals 5; petals 5, white; stamens 10; filaments narrow; ovary ca ½ inferior, partly 3- to 5-loculed at first, finally 1-loculed; styles 3–5, distinct; fruit a capsule, ca ⅓ inferior, with 3–5 valves, the valves with slender beaks; seeds numerous.

Jamesia americana T. & G. Cliff *Jamesia* [*Edwinia americana* (T. & G.) Heller; *E. macrocalyx* Small]. Shrubs 30–150 cm tall; foliage and young twigs pubescent with multicellular hairs; bark of twigs reddish or whitish, exfoliating in long whitish or translucent strips; petioles 2–10 mm long, canescent or sericeous-tomentose, sometimes lacking; leaf blades 7–40 mm long, (3) 6–32 mm wide, ovate or elliptic, serrate or dentate, rarely nearly entire, green and sparingly strigose on the upper surface, sericeous-canescens below; flowers few in small cymes; hypanthium 1–3 mm long in fruit, sericeous-canescens; sepals 3–4 mm long in flower, 5–6 mm long in fruit; petals 5–11 mm long, white, clawed, somewhat pubescent subapically; filaments gradually dilated basally; capsules 4–5 mm long. Mountain brush and spruce-fir communities, mostly on cliffs and other rocky places at 1220 to 3200 m in Juab, Millard, Salt Lake, Utah, and Washington counties; Wyoming to New Mexico, Nevada, and California; 25 (0).

Lithophragma Nutt.

Small, usually stipitate-glandular herbs from fibrous roots and very slender rhizomes,

bearing ricelike bulblets; leaves basal and alternate, variously palmately cleft or divided; flowers in racemes, perfect, regular; hypanthium calyxlike; sepals 5; petals 5, variously palmately lobed or cleft, with a narrow claw

and expanded blade; stamens 10; ovary 1-loculed; styles 3; fruit a 3-valved capsule; seeds numerous.

TAYLOR, R. L. 1965. The genus *Lithophragma* (Saxifragaceae). Univ. Cal. Publ. Bot. 37: 1-122.

1. Plants with few to several purple bulblets in the inflorescence and usually in axils of the upper leaves; inflorescence with (1) 2-4 flowers, sometimes branched; lower pedicels 1.5-3 times longer than the hypanthium; lower leaves glabrous or nearly so; stipitate glands dark purple *L. glabra*
- Plants without bulblets in inflorescence or in leaf axils; inflorescence mostly with 4 or more flowers; lower pedicels ca 0.5-1.5 times longer than hypanthium; leaves moderately to densely pubescent; stipitate glands whitish or pale purplish 2
- 2(1). Hypanthium wedge shaped at the base or funnellform, gradually tapering to the pedicel, the hypanthium and sepals 4-6 mm long in flower, to 7 mm long in fruit; petals mainly 3-lobed, 5-9 mm long, excluding the claw, white; ovary inferior or nearly so; plants of north central mountains *L. parviflora*
- Hypanthium campanulate, abruptly tapering to the pedicel, the hypanthium and sepals 3-4 mm long in flower and to 5 mm long in fruit; petals 5- to 7-lobed, 3-6 mm long excluding the claw, pinkish or white; ovary ca ½ inferior or less; plants of western and southern Utah *L. tenella*

Lithophragma glabra Nutt. in T. & G. Fringecup. [*L. bulbifera* Rydb.; *L. glabra* var. *bulbifera* Jepson]. Plants 5-35 cm tall, glandular-pubescent, the gland tips mostly dark purple; petioles of lower leaves 1.2-4.8 cm long; leaf blades 5-24 mm long, 8-48 mm wide, orbicular or reniform in outline, parted or divided and trifoliate or palmate, the main divisions again lobed to parted, reduced above and often with purple bulblets in the axils; inflorescence simple or branched, purple, 1-5 (13) cm long, with (1) 2-4 normal flowers and others reduced to bulblets; pedicels 2-10 mm long; hypanthium 2-5 mm long, campanulate; sepals ca 1 mm long; petals pinkish, white, or pale lavender, the claw 1-2 mm long, the blades 4-7 mm long, 3- to 5-lobed or parted; ovary ca ¼ inferior; seeds muricate. Aspen, oak-maple, sagebrush, pinon-juniper, mountain brush, riparian, ponderosa pine, spruce, fir, lodgepole pine, and rarely in greasewood communities at 1310 to 3050 m in Beaver, Box Elder, Cache, Carbon, Daggett, Davis, Duchesne, Grand, Juab, Iron, Millard, Morgan, Rich, Salt Lake, San Juan, Sanpete, Sevier, Summit, Tooele, Uintah, Utah, Wasatch, Washington, and Weber counties; British Columbia to California, east to Alberta, the Dakotas, and Colorado; 82 (vi). Our plants are referable to var. *ramulosa*

(Suksd.) Goodrich comb. nov. [based on *L. tenella* var. *ramulosa* Suksd.].

Lithophragma parviflora (Hook.) Nutt. in T. & G. Smallflower Woodlandstar. [*Tellima parviflora* Hook.]. Perennial herbs from fibrous roots and slender rootstocks bearing small bulblets, 9-47 cm tall, pubescent with mostly glandular hairs, rather densely so in the inflorescence; petioles of basal leaves 2-11 cm long; leaf blades 9-35 mm long, 11-50 mm wide, orbicular or reniform in outline, 3-parted or 3-foliate, with the divisions again lobed, cleft, or parted; stem leaves similar to the basal ones but sometimes reduced upward; racemes congested, 1-2 (3) cm long in flower, to 7.5 cm long in fruit, 4- to 7-flowered, the pedicels 1-5 mm long in flower, to 8 mm long in fruit; hypanthium (3.5) 4-5 mm long in flower, to 6 mm long in fruit, wedge-shaped or funnellform basally, and gradually tapered to the pedicel; sepals 0.7-1.4 mm long; petals white, clawed, the claws 2-3.5 mm long; ovary inferior or nearly so; seeds smooth. Oak-maple, sagebrush, aspen, riparian, meadow, lodgepole pine, spruce, and fir communities at 1450 to 2590 (3050) m in Box Elder, Cache, Carbon, Davis, Emery, Juab, Millard, Morgan, Salt Lake, Sanpete, Summit, Tooele, Uintah, Utah, Wasatch, and Weber counties; British

Columbia to northern California, east to Alberta, South Dakota, and Colorado; 88 (i).

Lithophragma tenella Nutt. in T. & G. Slender Woodlandstar. [*L. australis* Rydb.]. Plants 10–43 cm tall, pubescent, the hairs mostly glandular, the gland tips whitish or pale purplish; petioles 0.5–4.5 cm long; leaf blades 4–25 mm long, (5) 9–30 mm wide, orbicular or ovate, parted or 3-foliolate, the main divisions again lobed or parted; racemes ca 1–3 cm long in flower, to 15 cm long in fruit, with 4–13 flowers; pedicels 2–7 mm long; hypanthium campanulate, 2–3 mm long; sepals about 1 mm long; petals pinkish or whitish, the claws 1–2 mm long, the blades 3–6 mm long, with 5–7 lobes; ovary ca ½ inferior; seeds smooth. Pinyon-juniper, sagebrush, mountain brush, ponderosa pine, as-

pen, riparian, meadow, and spruce communities at (1310) 2075 to 3050 m in Beaver, Box Elder, Cache, Garfield, Grand, Iron, Juab, Kane, Piute, Salt Lake, San Juan, Sevier, Tooele, and Washington counties; western Washington south to Arizona, east to Montana and New Mexico; 50 (ii).

Mitella L.

Scapose glandular-puberulent herbs from rhizomes; leaves basal, palmately lobed, cordate; flowers in racemes, perfect, regular; hypanthium calyxlike; sepals 5; petals 5, pinnately or palmately lobed, small and soon withered; stamens 5; ovary ca ½ inferior, 1-loculed; style 1; fruit a capsule, dehiscent by ventral suture and appearing almost circumscissile; seeds numerous.

- 1. Racemes secund; pedicels lacking or to 3 mm long; petals with (2) 3 lobes; sepals whitish or purplish; leaf margin often ciliate; scapes often hirtellous or hirsute as well as glandular *M. stauropetala*
- Racemes not especially secund; pedicels mainly 2–8 mm long; petals pinnately divided; sepals greenish; leaf margin seldom if ever ciliate; scapes glabrate toward the base *M. pentandra*

Mitella pentandra Hook. Fivestar Miterwort. Scapose perennial herbs, 10–35 cm tall; petioles 1.8–10 cm long, glabrous or sparingly pilose; leaf blades 1.5–5.7 cm wide, ovate to orbicular, cordate basally, with 5–9 shallow lobes, the lobes dentate, the teeth mucronate, seldom if at all ciliate, glabrous, or more often hirsute to pilose; scapes glandular above; racemes 3–16 cm long, 4- to 20-flowered; pedicels 2–8 mm long, shorter above; hypanthium saucer shaped to campanulate, 1–2.5 mm long; sepals less than 1 mm long; petals 2–3 mm long, greenish, pinnately dissected into 4–10 filiform segments; capsules ca 2 mm long. Meadows, near seeps, springs, streams, lakes, and ponds, often in shaded sites in aspen, conifer, and willow communities at 1740 to 3650 m in Box Elder, Daggett, Davis, Duchesne, Emery, Salt Lake, Sanpete, Summit, Uintah, Utah, and Wasatch counties; Alaska south to northern California, east to Alberta and Colorado; 33 (iii).

Mitella stauropetala Piper Smallflower Miterwort. [*M. stenopetala* Piper Type from the Wasatch Mountains.] Perennial scapose herbs 15–50 cm tall or more; petioles 1.2–13 cm long, glandular and sometimes hirsute; leaf blades 1–7.8 cm wide and about as long,

orbicular or broadly ovate, cordate, 5- to 9-lobed, the lobes crenate, the margin ciliate, glabrous or minutely glandular and sparingly hirsute; scapes glandular to the base; racemes 4.5–18 (24) cm long, mostly strongly secund, 7- to 24-flowered, mainly with 1 flower per node; pedicels obsolete or to 2 or 3 mm long; hypanthium ca 1–2 mm long, cupshaped; sepals ca 1.5 mm long, oblong, whitish or purplish; petals 2–4 mm long, 3 (2) -lobed or rarely entire, the lobes filiform; capsules ca 2 mm long. Mountain brush, aspen, ponderosa pine, fir, and spruce communities at 1615 to 3050 m in Box Elder, Cache, Carbon, Duchesne, Emery, Juab, Millard, Salt Lake, San Juan, Sanpete, Summit, Tooele, Utah, Wasatch, and Weber counties; eastern Washington and Oregon to Montana, south to Colorado. Our plants are referable to *var. stenopetala* (Piper) Rosend.; separable from *M. pentandra* by a series of small features, but sometimes confused with that taxon; 65 (ii).

Parnassia L.

Scapose perennial glabrous herbs from short rootstocks; leaves basal, entire; scapes with a solitary, entire bract or bractlike leaf;

flowers solitary and terminal, perfect, regular; hypanthium calyxlike, sometimes nearly obsolete; sepals 5; petals 5, white; stamens 5, alternating with clusters of gland-tipped

staminodia; ovary superior or slightly inferior, 1-loculed; styles lacking; stigmas 3 or 4, sessile; fruit a capsule, loculicidal at the apex; seeds numerous.

1. Petals fringed below the middle; petioles (1.5) 3–16 cm long; leaf blades cordate to truncate basally, 12–45 mm wide, broader than long; bract mostly borne above the middle of the scape *P. fimbriata*
- Petals entire; petioles 0.7–4 cm long; leaf blades cuneate or obtuse basally (rarely truncate or cordate), 5–20 mm wide, mostly longer than broad; bract borne below the middle of the scape *P. palustris*

***Parnassia fimbriata* König** Fringed Grass-of-Parnassus. Perennial, scapose glabrous herbs, 14–43 cm tall; petioles (1.5) 3–16 cm long; leaf blades 12–45 mm wide, about as long, reniform, orbicular, or broadly ovate, cordate or truncate at the base; bracts of scapes ovate to orbicular, 7–17 mm long, mostly clasping, borne at or above the middle of the scape; flowers solitary and terminal; hypanthium nearly obsolete; sepals 4–7 mm long, 2–4 mm wide, sometimes slightly fimbriate; petals 8–15 mm long, including the narrow clawlike base, strongly fimbriate below the middle; staminodia thickened and scalelike, flared above the middle and usually with a central subterminal larger lobe and 7–9 marginal ones; capsules to 1 cm long. Along springlets, streams, seeps, ponds, and lakes, often in aspen, spruce, fir, and mountain brush communities at 2010 to 2895 (3355) m in Cache, Duchesne, Salt Lake, San Juan, Summit, and Utah counties; Alaska south to California, east to Alberta and New Mexico; 45 (v). Our plants are referable to var. *fimbriata*.

***Parnassia palustris* L.** Perennial, scapose glabrous herbs, 8–44 cm tall; petioles 0.7–4 cm long; leaf blades 7–27 mm long, 5–20 mm wide, ovate to nearly orbicular, mostly cuneate or obtuse at the base, rarely truncate; bracts of scapes linear to ovate, (3) 5–25 mm long, sessile and sometimes clasping, borne mostly below the middle of the scape; flowers solitary and terminal; hypanthium ca 2 mm long; sepals 3–10 mm long; petals 6–14 mm long, including the narrow claw, entire, white; staminodia with a thickened scalelike base, flared upward and divided into (5) 7–11 (or many) slender filamentous segments, these terminating in capitate knobs; capsule ovoid 8–10 (12) mm long. Wet meadows, near seeps and springs, and along streams, sometimes in

woods at (1375) 1830 to 3415 m in Beaver, Box Elder, Cache, Duchesne, Emery, Garfield, Grand, Iron, Juab, Kane, Piute, Sanpete, Summit, Uintah, Utah, Washington, and Wayne counties; arctic America south to Quebec and British Columbia; Rocky Mountains to Colorado, Nevada (Spring Mts.), and California; Eurasia; 64 (0). Our plants are assignable to var. *montanensis* (Fern. & Rydb.) C.L. Hitchc. Many of our specimens have been identified previously as *P. parviflora* DC., which is known from well to the north of our area, and which may be only a small-flowered phase of *P. palustris* not worthy of taxonomic recognition.

Peltiphyllum Engl.

Scapose perennial herbs from thick rhizomes; leaves developing after the scapes; petioles long; blades peltate, very large; flowers in bractless, paniculate-corymbose cymes, showy, regular; hypanthium very short, adnate to the ovary; sepals 5; petals 5; stamens 10; carpels 2, free above the hypanthium, tapering to the discoid-capitate stigma; fruit a follicle, fully dehiscent; seeds cellular-rugulose.

***Peltiphyllum peltatum* (Torr.) Engel. in Engel. & Prantl** Shieldleaf. Robust perennial herbs; rhizomes fleshy but tough, to 5 cm thick; petioles to 1 m tall or more, hirsute; leaf blades 5–40 cm broad, peltate, depressed at the center above the point of attachment to the petiole, nearly orbicular, 10- to 15-lobed, the divisions again lobed and serrate-dentate; scapes 3–6 dm tall or more, hirsute-glandular, naked, or with a small bract; sepals 2.5–3.5 mm long, reflexed; petals 4.5–7 mm long, white to bright pink; filaments flattened and broad at the base; follicles 6–10 mm long, purplish, fused basally. Known in

Utah from a small colony growing along a cold mountain stream on the east side of Mount Timpanogos, Utah County; coastal southwestern Oregon and northern California; 4 (0). The widely disjunct colony may be from an introduction.

Philadelphus L.

Shrubs; leaves opposite, subsessile or on short petioles; flowers perfect, regular, in few-flowered cymes at the ends of leafy branches; hypanthium calyxlike; sepals 4 (5); petals 4 (5), white or nearly white; stamens

many (ca 20–60); ovary at least $\frac{3}{4}$ inferior, with 3–5 locules; styles 3–5, distinct or united; fruit a loculicidal capsule, leathery or woody; seeds numerous. **Note:** In addition to the taxa included in the key, *P. verrucosus* Shrad. and *x P. virginalis* Rehd. are occasionally cultivated in Utah. These differ from those treated below in having sepals pubescent on the back, not just on the margins. *P. verrucosus* has single flowers and *x P. virginalis* has double flowers. In addition to these, *P. lewisii* Pursh of the Northwest might also be cultivated in the state.

1. Leaves entire, 4–26 mm long; plants native *P. microphyllus*
- Leaves toothed, sometimes larger than above; plants introduced, to 3 m tall, our common cultivated mockorange *P. coronarius* L.

Philadelphus microphyllus Gray Littleleaf

Mockorange. [*P. nitidus* A. Nels.]. Shrubs 8–20 dm tall, with opposite leaves; branchlets appressed pubescent; petioles ca 1 mm long; leaf blades 4–26 mm long, 2–13 mm wide, mostly elliptic or ovate to lanceolate or linear, entire, slightly revolute, sparingly to moderately strigose or glabrate; pedicels to 3 mm long, strigose-sericeous; hypanthium ca 2–3 mm long, pubescent like the pedicels; sepals 2–5 mm long; petals 8–15 mm long, white; stamens about equal to the sepals; capsules 6–8 mm long. Pinyon-juniper, mountain brush, ponderosa pine, aspen, and fir communities, mostly on sandstone at 1220 to 2650 m in Beaver, Carbon, Daggett, Emery, Garfield, Grand, Juab, Millard, Piute, San Juan, Sevier, Tooele, Uintah, Washington, and Wayne counties; Wyoming and Utah to Texas; 80 (iii). Plants from the southern part of the state have leaves that are slightly larger on the average than those from more northern areas, but the difference does not seem to warrant taxonomic recognition.

Ribes L.

Shrubs with or without bristles and spines; leaves alternate, palmately lobed, crenate or dentate; stipules none or adnate to the petiole; flowers perfect, regular, in racemes, or rarely solitary; pedicels subtended by bracts and usually with 2 bractlets about midlength; hypanthium mostly corollalike; sepals 5, mostly petaloid; petals 5 (4), often smaller than the sepals; stamens 5 (4–6); ovary completely inferior, 1-loculed; styles 2, united or distinct; fruit a berry, crowned by the withered flower; seeds several to many. **Note:** The taxa with jointed and disarticulating pedicels, several flowers per raceme, and stipitate-glandular or glabrous berries are referred to as currants. The currants in our area are without spines or bristles except for *R. la-custre* and *R. montigenum*. The taxa with nonjointed and persistent pedicels and with only (1) 2 or 3 flowers per raceme and without stipitate-glandular hairs on the berries are referred to as gooseberries. The gooseberries of Utah all have nodal spines.

BERGER, A. 1924. A taxonomic review of currants and gooseberries. N.Y. State Agr. Exp. Sta. Tech. Bull. 109: 1–118.

1. Branchlets armed with nodal spines, sometimes also with internodal bristles (see note at the end of the genus description) 2
- Branchlets unarmed (currants—see note above at the end of the genus description) 8
- 2(1). Racemes with 3–15 flowers; ovaries and berries with setose-stipitate glands; hypanthium saucer shaped 3

- Racemes with 1–3 flowers; ovaries and berries glabrous or pubescent, but not with setose-stipitate glands; hypanthium tubular or cup shaped 4
- 3(2). Racemes with 3–8 flowers; berries red; leaves with glandular and nonglandular hairs, the blades cleft $\frac{3}{4}$ of the way to nearly all the way to the base; plants common and widespread *R. montigenum*
- Racemes with (5) 7–15 flowers; berries black or purple-black; leaves glandular or with a few nonglandular hairs along the veins, the blades lobed $\frac{2}{3}$ of the way to the base or less; plants of the Uinta and Wasatch mountains *R. lacustre*
- 4(2). Leaves 7–20 mm wide; styles connate to near the apex; free hypanthium and sepals pubescent externally; plants of desert ranges of western and southern Utah 5
- At least some of the leaves over 20 mm wide, and/or styles lobed or cleft $\frac{1}{4}$ to $\frac{1}{2}$ the length; free hypanthium and sepals mostly glabrous externally; plants of various distribution 6
- 5(4). Free hypanthium 4–5.5 mm long; sepals 4–6 mm long; ovaries and berries mostly glabrous *R. leptanthum*
- Free hypanthium 1–2 mm long; sepals 2–4 mm long; ovaries and berries glabrous to hairy *R. velutinum*
- 6(4). Hypanthium pubescent within; berries greenish or yellowish (ripening purplish); plants cultivated, persisting, and rarely escaping. English Gooseberry *R. grossularia* L.
- Hypanthium glabrous within, but the styles pubescent; berries reddish or blackish; plants indigenous 7
- 7(6). Free hypanthium 2–3.5 mm long; stamens usually twice as long as the petals, about equaling the sepals when extended; berries reddish purple; nodal spines 1 (rarely 3) or lacking; branchlets usually glabrous; plants common and widespread *R. inerme*
- Free hypanthium 4–5 mm long; stamens subequal to the petals or rarely to twice their length, not as long as the extended sepals; berries purple-black; nodal spines usually 3; branchlets finely puberulent and sometimes with internodal bristles; plants rather rare, except along the south slope of the Uinta Mountains *R. setosum*
- 8(1). Flowers bright yellow, often reddish in part in age, glabrous; ovaries and berries glabrous; leaves glabrous, not cordate, with 3 (rarely 5) primary lobes, the primary lobes seldom with more than 3 teeth or lobes *R. aureum*
- Flowers not yellow, often pubescent or glandular; ovaries and berries with sessile or stipitate glands (except in *R. sativum* and *R. inerme*); leaves often pubescent, mostly cordate, with (3) 5–7 primary lobes, these with usually more than 3 teeth or lobes 9
- 9(8). Leaf blades, flowers, and fruit stipitate-glandular, or if sparingly so then flowers pinkish and berries red; free hypanthium 4–11 mm long, campanulate to cylindric; anthers glandular apically 10
- Leaf blades not stipitate-glandular, glabrous or with hairs mostly on veins, or with sessile glands; flowers rarely pinkish; berries red only in *R. inerme*; free hypanthium mostly less than 4 mm long, variously shaped; anthers eglandular 11
- 10(9). Flowers (1) 2 or 3 per raceme, pinkish, the hypanthium less than 3 mm wide; berries red; leaf blades 7–30 (44) mm wide, not pilose-hirsute *R. cereum*

- Flowers 4–12 per raceme, greenish white to cream, the hypanthium 3–6 mm wide; berries blackish; leaf blades 30–100 mm wide, at least some, pilose-hirsute and stipitate-glandular *R. viscosissimum*
- 11(9). Ovaries and berries stipitate-glandular or with crystalline, yellowish, sessile glands; lower leaf surface with sessile glands; berries blackish; flowers (5) 8–30 per raceme; styles glabrous 12
- Ovaries and berries glabrous, or if with sessile nonglandular spots then the flower 1–3 per raceme and styles pubescent; berries red or reddish purple 15
- 12(11). Lower surface of leaves and floral parts with scattered, crystalline yellow glands; racemes many-flowered (to 30); plants strongly aromatic 13
- Leaves and/or floral parts with stipitate glands, or variously glandular, but not with yellow crystalline glands; racemes with (5) 8–16 flowers; plants not strongly aromatic 14
- 13(12). Sepals longer than the free hypanthium; racemes erect or ascending; plants indigenous *R. hudsonianum*
- Sepals shorter than the free hypanthium; racemes spreading to pendulous; plants cultivated. Black or Bedbug Currant *R. nigrum* L.
- 14(12). Bracts of racemes 3–4 mm long, about $\frac{1}{2}$ as long as the pedicels, oblong; flowers whitish or greenish; stipitate hairs of racemes whitish or pale greenish, rarely purplish, often sparse except on ovary and berry; racemes crowded, the upper internodes seldom over 3 mm long; plants of the La Sal Mountains and portions of central Utah *R. wolfii*
- Bracts of racemes 1–2 mm long, less than $\frac{1}{2}$ as long as the pedicels, linear to acute; flowers pinkish or purplish; stipitate hairs of racemes mostly with purple tips, usually well developed on rachis and pedicels as well as on ovaries and berries; racemes loose, 1 or more of the upper internodes regularly over 3 mm long, plants of the Deep Creek Mountains *R. laxiflorum*
- 15(11). Flowers 1–3 per raceme, white; sepals longer than wide; free hypanthium ca 2–3.5 mm long; styles pubescent; plants indigenous *R. inerme*
- Flowers 8–20 per raceme, greenish; sepals wider than long; hypanthium to 2 mm long; styles glabrous; plants cultivated and escaping. Red Currant *R. sativum* Syme

***Ribes aureum* Pursh** Golden Currant. Shrubs, 1–3 m tall, unarmed; branchlets glabrous; petioles 0.5–2.5 (3) cm long; leaf blades 0.6–4.7 cm long, 1–6.7 cm wide, orbicular, reniform, obovate, cuneate to truncate basally, strongly 3-lobed, the lobes entire or crenate to lobed, glabrous; racemes with (3) 6–9 flowers; bracts 3–12 mm long, entire; pedicels to 3 mm long; free hypanthium cylindric, yellow, or often reddish in age, corollalike; sepals 4–6 mm long, yellow, spreading; petals ca 2 mm long, yellow, cream, or reddish; stamens subequal to the petals, the anthers longer than the filaments; styles united to near the apex; berries 8–12 mm long, black or translucent-golden, glabrous. Streamsides, washes, ditches, rivers, seeps,

and springs in greasewood-shadscale, sagebrush, pinyon-juniper, mountain brush, ponderosa pine, and Douglas-fir communities, also cultivated at 1340 to 2590 m in all Utah counties except Grand and San Juan; Washington to Saskatchewan, south to California and New Mexico; 150 (iii). The golden currant is similar to *R. odoratum* Wendl. of the eastern United States and Canada, which may be cultivated in the state. The berries are the most palatable of any species of *Ribes* in Utah.

***Ribes cereum* Dougl.** Wax or Squaw Currant. Shrubs, (0.2) 0.5–1.5 (2) m tall, unarmed; branchlets pilose-villous and stipitate-glandular; petioles 0.4–2.2 (2.9) cm long; leaf blades 0.5–2.5 (3.4) cm long, 0.7–3 (4.4)

cm wide, orbicular, reniform, rarely ovate, cordate or truncate basally, with 3-7 shallow lobes, the lobes crenate or dentate, puberulent and stipitate glandular, or glabrous except on margins and along veins beneath; racemes with 2 or 3 flowers, the axis very short; bracts 2-5 mm long ciliate, fringed or lacerate, glandular; free hypanthium 4-11 mm long, pinkish, pilose, sometimes also stipitate-glandular; sepals ca 2 mm long, spreading to deflexed, whitish or pinkish; petals ca 1 mm long, whitish; staminal filaments subequal to the anthers; styles united to near the apex; ovaries stipitate-glandular; berries 6-8 mm long, reddish, sparingly stipitate-glandular, rarely glabrate. Mountain brush, sagebrush, pinyon-juniper, riparian, ponderosa pine, aspen, limber pine, spruce-fir, krummholz, alpine, and less commonly desert shrub communities at 1520 to 3260 m in all Utah counties but Davis; British Columbia to Montana, south to California and New Mexico; 230 (vi). Most of our plants are referable to *var. inebrians* (Lindl.) C.L. Hitchc., with bracts of the racemes mostly ovate or obovate, usually pointed, and with margins entire to sharply denticulate or with 2 or 3 shallow lobes. Occasional specimens have fan-shaped bracts that are truncate to broadly rounded and prominently toothed or with as many as 6 lobes. These specimens might be referable to *var. cereum*, but the distinction is tenuous at best. Intergradation of the morphological features is common, and no geographical correlation is apparent in Utah.

Ribes hudsonianum Richards. Northern Black Currant. Shrubs, 0.5-1.5 (2) m tall, rather strongly scented, unarmed; herbage bearing crystalline, yellowish glands, usually puberulent; petioles (1) 2.5-8.5 cm long; leaf blades (2.1) 2.7-8.2 cm long, (2) 5-12.2 cm wide, orbicular or ovate in outline, strongly 3-lobed and doubly dentate, the lateral lobes again lobed, cordate basally; racemes ca 20- to 30-flowered, to 12 cm long in fruit; bracts ca 0.5-1.5 mm long, awl-shaped, soon deciduous; free hypanthium to ca 1 mm long, whitish; sepals 2.5-4 mm long, white; petals ca $\frac{1}{2}$ as long as sepals; styles united for more than $\frac{1}{2}$ their length; berries 7-12 mm long, blackish, glabrous except for sessile glands. Streamsides, usually in aspen, lodgepole pine,

or spruce-fir communities at 1830 to 2590 m in the Raft River, Wasatch, and Uinta mountains in Box Elder, Duchesne, Salt Lake, Summit, Utah, and Wasatch counties; Alaska to Hudson Bay, south to California, Wyoming, and Minnesota; 11 (i). Our plants are referable to *var. petiolare* (Dougl.) Jancz.

Ribes inerme Rydb. Whitestem Gooseberry; Wine Gooseberry. Shrubs 0.75-2 m tall; branchlets often whitish, glabrous, armed at the nodes with 1 (3) spines, or the spines lacking; internodal bristles mostly lacking or few and sparse; petioles (0.3) 0.5-4.5 cm long, sometimes with 1 to few pilose gland-tipped hairs; blades (0.8) 1.5-9 cm long, orbicular or nearly so, cordate to truncate with 3-5 main lobes that are again lobed and crenate-dentate toothed, the major sinuses cut $\frac{1}{3}$ - $\frac{2}{3}$ the way to the base, glabrous, glabrate with hairs mostly along the veins or occasionally with moderately dense strigose or short recurved hairs, not glandular, paler beneath than above; racemes 1-4 flowered, the axis to about 12 mm long; bracts 1-2 mm long, greenish, glabrous or glandular ciliate and puberulent; pedicels 2-5 mm long; free hypanthium 2-3.5 mm long, cylindric to narrowly campanulate, greenish or greenish cream, sometimes purplish tinged, densely pilose to villous-wooly inside; sepals about 3 mm long, colored as the hypanthium; petals about 1-1.5 mm long, obovate to narrowly fan-shaped, white; stamens about (1.5) 2-2.5 times longer than the petals, 2-4 (5) mm long; styles about equal or slightly longer than the stamens, cleft $\frac{1}{2}$ - $\frac{2}{3}$ the way to the base, rather densely pilose on the lower $\frac{1}{2}$ or more; berries 7-10 mm long, reddish or reddish purple, succulent, more or less edible. Pinyon-juniper, mountain brush, aspen, willow, Douglas-fir, spruce-fir, tall forb, and meadow communities, often along streams or in wet places, occasionally among rocks in rather dry places at 1830 to 3100 m, in Cache, Carbon, Daggett, Duchesne, Garfield, Grand, Juab, Piute, San Juan, Salt Lake, Sanpete, Sevier, Summit, Tooele, Uintah, Utah, Wasatch, and Weber counties; British Columbia to California, Montana to New Mexico; 56 (vii). Some Utah specimens have stamens shorter than is traditionally listed for the species. See *R. setosum*.

Ribes lacustre (Pers.) Poir. in Lam. Swamp Black Gooseberry. Shrubs, 0.75–1.5 m tall; branchlets armed with internodal prickles and nodal spines, also puberulent but not glandular; petioles 0.3–5 cm long, glabrous or with scattered stipitate-glandular hairs; leaf blades (0.6) 1.5–5.6 cm long, (1) 2–8 cm wide, orbicular in outline, cordate at the base, usually 5-lobed, the lobes again lobed and doubly crenate-dentate, glabrous or sparingly hairy along the veins; racemes rather loosely 5- to 15-flowered, the axis to 4.5 cm long in fruit, stipitate-glandular with reddish or purplish glands, also puberulent; bracts 2–3 mm long, ciliate-glandular; pedicels 3–8 mm long; free hypanthium less than 1 mm long, saucer shaped, yellowish green, pinkish, or reddish; sepals 2.5–3 mm long, yellow-green, pinkish, or reddish; petals shorter than the sepals, pinkish; stamens subequal to the petals; styles parted to the base; berries 6–8 mm long, dark purple, coarsely stipitate-glandular. Along streams and in other moist places often in conifer and aspen woods at 2100 to 3350 m in the Uinta and Wasatch mountains, in Duchesne, Salt Lake, Summit, and Wasatch counties; Alaska to Newfoundland, south to California, Colorado, South Dakota, and Michigan; 20 (iv).

Ribes laxiflorum Pursh. Western or Trail-ing Black Currant. Shrubs to about 0.7 m tall, the stems sprawling or ascending, unarmed; twigs of the season and some older branches puberulent; petioles (0.5) 2–4.5 cm long, puberulent, sometimes short stipitate-glandular near the blade; leaf blades (1) 2–5 cm long, 1.5–6.5 cm wide, orbicular or nearly so, cordate, with 3–5 primary lobes, these again lobed and crenate-dentate, the major sinuses cut about $\frac{1}{4}$ – $\frac{1}{2}$ the way to the base; glabrate or with some puberulent hairs and stipitate glandular hairs, especially toward the base on veins beneath, slightly paler beneath with translucent crystalline sessile glands; racemes 5- to 10-flowered, stipitate glandular and puberulent, the axis 2–4 cm long; bracts 1–2 mm long, linear or narrowly triangular, greenish; pedicels 4–10 mm long, jointed just below the ovary, some usually persisting at least until fruit is nearly mature; free hypanthium less than 1 mm long; sepals 2–3 mm long, pinkish or purplish; petals about 1 mm long, 1–1.3 mm wide, broadly fan shaped

with concave margins; stamens about equaling the petals; styles cleft $\frac{1}{3}$ – $\frac{2}{3}$ their length; berries to ca 1 cm long, blackish, stipitate-glandular, the glands and stalks mostly purplish. Known in Utah from a single small population in the Deep Creek Mountains, Juab County, where abundant in wet shady places among downed timber and boulders, in a spruce-aspen community. Alaska to Washington and along the coast to southwest California, east to Alberta and northern Idaho, widely disjunct in Utah; 2 (i). The closely related *R. coloradense* Cov. of Colorado and New Mexico has been reported for Utah, but I have seen no specimens. It is reported to be separable from *R. laxiflorum* by glandular hairs on the back of sepals (a feature that occasionally shows up in plants as far away as Alaska), by petals nearly twice as broad as long, and by berries without bloom. The separation appears rather tenuous at the species level. A combination has been made [*R. laxiflorum* var. *coloradense* (Cov.) Jancz]. The amazingly disjunct population in Utah seems more closely allied to the coastal and northern plants than to those of Colorado.

Ribes leptanthum Gray Trumpet Gooseberry. Shrubs, 0.5–2 m tall; branchlets armed at the nodes with 1–3 spines, usually lacking internodal bristles, puberulent; petioles 0.2–1.2 cm long; leaf blades 0.5–1.6 cm long, 0.7–2 cm wide, orbicular, cordate basally, mostly 5-lobed, the main lobes again shallowly lobed or toothed, glabrous or less commonly puberulent and rarely glandular; racemes 1- to 3-flowered, the axis very short; bracts glabrous except glandular-ciliate or -toothed; pedicels ca 1 mm long; free hypanthium 4–5.5 mm long, whitish, pilose or short-villous; sepals 4–6 mm long, whitish; petals 2.5–3 mm long, whitish; stamens subequal to the petals; anthers shorter than the filaments; styles glabrous, apically notched; berries ca 6–10 mm long, blackish, glabrous. Pinyon-juniper, mountain brush, ponderosa pine, aspen, spruce-fir, and meadow communities at 1830 to 2590 m in Beaver, Emery, Garfield, Grand, Kane, Piute, and San Juan counties; Colorado, Utah, New Mexico, and Arizona; 22 (i).

Ribes montigenum McClatchie Gooseberry Currant. [*R. lacustre* var. *lentum* Jones, type from Henry Mts.]. Shrubs, 0.2–0.7 m

tall; branchlets armed with 1-5 nodal spines, the internodal bristles lacking or present, puberulent or glabrous; petioles 0.4-4 cm long; leaf blades 0.4-3.7 cm long, 0.6-5 cm wide, orbicular in outline, cordate at the base, usually 5-lobed, the primary lobes again lobed or toothed, the vestiture of glandular or non-glandular hairs and sometimes with sessile crystalline glands; racemes 3- to 8-flowered, the axis to 3.5 cm long in fruit; bracts 2-3 mm long, glandular-pubescent; pedicels 1-3 mm long; free hypanthium ca 1 mm long, saucer shaped, lined with a yellowish or pinkish disk, glandular-hairy; sepals ca 3 mm long, pinkish lavender to whitish; petals ca 1 mm long, pinkish or pink-purple; stamens subequal to the petals; filaments longer than the anthers; style divided to near the base, glabrous; berries mostly 5-10 mm long, red, stipitate-glandular. Spruce-fir, Douglas-fir, lodgepole pine, bristlecone pine, aspen, krummholz, sagebrush-snowberry, and sedge-grass communities, and often in talus and scree slopes at 2135 to 3660 m in all Utah counties except Davis, Millard, Morgan, and Rich; British Columbia to southern California, east to Montana and New Mexico; 151 (v).

Ribes setosum Lindl. Missouri Gooseberry. Shrubs 0.75-2 m tall; branchlets sometimes armed with internodal bristles, the nodes with 1-3 spines; petioles 1-4.8 cm long, often puberulent to pubescent, sometimes with a few glandular long setae that are sometimes pilose; blades (1.5) 2-5.7 cm long, orbicular or nearly so, truncate to cordate, with about 5 main lobes that are again lobed and crenate-dentate, the major sinuses cut a little less than $\frac{1}{2}$ to about $\frac{3}{4}$ the way to the base of the blade, scattered to moderately pubescent with short curved hairs or rarely glabrate above and beneath, the hairs rarely confined to the nerves, often stipitate glandular and/or with sessile translucent glandular dots beneath and sometimes above, slightly paler beneath than above; racemes 1- to 4-flowered, the axis to about 5 mm long; bracts 1-3 mm long, greenish, minutely glandular ciliate; pedicels about 2-5 mm long; free hypanthium 4-5 mm long, cylindric, greenish white or pinkish tinged, pilose to villous-wooly within; sepals 3-4 mm, the color of the hypanthium; petals about 2 mm long,

obovate, white; stamens equaling the petals or slightly exerted, not longer than the mostly erect to ascending sepals; styles about equaling the sepals, cleft $\frac{1}{2}$ - $\frac{2}{3}$ the way to the base, densely pilose on the lower $\frac{1}{2}$ or $\frac{3}{4}$; berries 10-12 mm long, blackish or deep purple-black, succulent, more or less edible. With aspen, alder, birch, and willows in riparian or seepy meadow communities or about seeps and springs at 2130 to 2560 (2750) m in (Deep Creek?) Raft River and Uinta mountains in Box Elder, Duchesne, (Juab?), and Uintah counties; Alberta to Utah east to the Dakotas and Michigan; 15 (iii). A few Utah specimens seem intermediate to *R. inerme*.

Ribes velutinum Greene Desert Gooseberry. Shrubs, mostly 1-2 m tall, with 1 (2 or 3) nodal spine, lacking internodal bristles; branchlets usually pubescent; petioles 0.3-1.5 cm long; leaf blades 0.5-1.4 cm long, 0.7-2 mm wide, orbicular, 3- to 5-lobed, the main lobes usually again lobed, pubescent or glabrous; racemes 1- to 3-flowered, the axis very short; bracts 2-3 mm long, puberulent; pedicels 1-2 mm long; free hypanthium ca 1-2 mm long, pubescent externally, whitish or pinkish; sepals 2-4 mm long, whitish; stamens subequal to the petals; filaments subequal to the anthers; style entire, subequal to the stamens; styles united to the apex; berries 5-8 mm long, reddish (?), glabrous or hirsute, not very fleshy. Pinyon-juniper, mountain brush, and sagebrush-desert shrub communities at 1340 to 2321 m in Beaver, Kane, Millard, Tooele, and Washington counties; Washington to California, east to Idaho and Arizona; 23 (ii). Our plants are referable to *var. velutinum*.

Ribes viscosissimum Pursh Sticky Currant. Aromatic shrubs, mostly 1-2 m tall, unarmed; branchlets pilose-hirsute and stipitate-glandular; petioles 0.6-7 cm long; leaf blades 0.9-6.6 cm long, 1.3-10 cm wide, orbicular, rarely ovate, cordate basally, 3- to 7-lobed, the main lobes crenate or dentate and sometimes again lobed, glandular-hairy and often pilose or hirsute; racemes 4- to 12-flowered, the axis 5-30 mm long, glandular; bracts 3-10 mm long, entire to toothed, glandular; pedicels 3-17 mm long; free hypanthium 5-9 mm long, whitish or pale green, stipitate-glandular and pilose-hirsute; sepals 3-5.5 mm long, white or yellow-green, or occasionally

pinkish; petals 2–3 mm long, whitish; stamens subequal to the petals; filaments longer than the anthers; styles simple, glabrous or nearly so; berries 10–13 mm long, black, rather dry, stipitate-glandular. Commonly growing in shade of aspen, fir, Douglas-fir, lodgepole pine, and spruce woods, and less commonly in mountain brush, meadows, and openings at 1965 to 2925 m in Box Elder, Cache, Carbon, Daggett, Duchesne, Kane, Millard, Morgan, Salt Lake, Sanpete, Summit, Tooele, Uintah, Utah, Wasatch, and Washington counties; British Columbia, south to California, east to Montana and Arizona. This plant is unique among our species in the dense stipitate-glandular and non-glandular hairs of the herbage and in the rather broad and long hypanthia. Our plants are referable to var. *viscosissimum*; 42 (ii).

***Ribes wolfii* Rothrock** Rothrock Currant. [*R. mogollonicum* Greene]. Shrubs, 0.5–3 m tall, unarmed; branchlets glabrous or puberulent; petioles 0.7–4.5 cm long, glabrous or puberulent; leaf blades 1.2–5.7 cm long, 1.2–8 cm wide, orbicular, cordate basally, 3 (5)-lobed, the main lobes again lobed and variously 1- or 2-crenate or -dentate, glabrous except for sessile, clear crystalline glands; racemes ca 8- to 16-flowered, glandular, the axis ca 1–4 cm long; bracts 3–6 mm long, mostly entire; pedicels 1–5 (7) mm long; free hypanthium ca 0.7–1.5 mm long, green, bowl shaped, glabrous or puberulent; sepals 2–3

mm long, whitish; petals ca 1.5 mm long, white; styles free or united below the middle; berries 6–10 mm long, blackish, not very fleshy, stipitate-glandular. Mountain brush, aspen, Douglas-fir, and spruce-fir communities, usually in shade at 1645 to 3350 m in Carbon, Emery, Grand, Juab, Millard, Salt Lake, San Juan, Sanpete, Sevier, Tooele, and Utah counties; Colorado, Arizona, and New Mexico, and in Washington and Idaho; 80 (iv). Vegetative specimens of *R. wolfii* are sometimes confused with *R. hudsonianum*. Both have sessile, crystalline, glandular dots on the lower surface of the leaves. In *R. wolfii*, these dots are more clear than yellow, smaller, and they are seldom noticeable on the often puberulent petioles and young twigs. In *R. hudsonianum* these dots are yellowish, larger, and more conspicuous, and they often extend down the less puberulent petioles and twigs.

Saxifraga L.

Perennial herbs; leaves alternate or basal; flowers perfect; hypanthium obsolete to well developed; sepals 5, erect to deflexed; petals 5, clawless or clawed, deciduous or persistent; stamens 10, the filaments subulate, linear, or flattened; carpels 2–5, connate only at the base or to near the tip; stigmas capitate; fruit capsular and dehiscent across the top or follicular; seeds numerous.

1. Leaves all basal, the blades subentire to coarsely toothed but not lobed, commonly over 15 mm long, usually distinctly petioled; flowers mostly more than 10; plants common and widespread 2
- Leaves cauline, at least in part, or if all basal then less than 15 mm long, not distinctly petioled, or if so then the blades lobed but not toothed; flowers 1–5, or rarely more; plants mainly of high mountains 3
- 2(1). Inflorescence open; leaf blades orbicular or reniform, truncate or cordate; petioles 1.2–23 cm long, usually longer than the blades; plants 16–67 cm tall *S. odontoloma*
- Inflorescence congested, occasionally interrupted; leaf blades rhombic, obovate or ovate, cuneate at the base; petioles 0.3–2.5 cm long, usually shorter than the blades; plants 3–20 (30) cm tall *S. rhomboidea*
- 3(1). Petioles evident, 0.5–4.5 cm long, usually longer than the blades; blades orbicular or reniform, palmately lobed or trilobate, cordate or truncate basally, with some usually over 5 mm wide 4
- Petioles not especially evident; blades linear to oblanceolate, entire or 3- to 7-lobed, not cordate or truncate basally, 0.5–5 mm wide 5

- 4(3). Bulblets present in upper leaf-axils and inflorescence, not at petiole bases of lower leaves; hypanthium ca 1 mm long, not turbinate *S. cernua*
- Bulblets not present in upper leaf-axils and inflorescence, often present at petiole bases of lower leaves; hypanthium 2–3 mm long, turbinate *S. debilis*
- 5(3). Leaves toothed (sometimes obscurely so) or lobed; petals white; sepals erect or somewhat spreading, ca $\frac{1}{2}$ as long as the hypanthium; plants glandular 6
- Leaves entire; petals yellow (white in *S. bronchialis*), but fading whitish; sepals spreading to reflexed, mostly more than $\frac{1}{2}$ as long as the hypanthium 7
- 6(5). Plants depressed caespitose; leaves lobed, those of the stem generally less deeply lobed than the basal ones; petals gradually narrowed to the base, clawless or very shortly clawed; filaments longer than the sepals *S. caespitosa*
- Plants not depressed caespitose; leaves usually merely toothed, those of the stems often more prominently toothed than the basal ones; petals abruptly narrowed to a short claw; filaments shorter than the sepals *S. adscendens*
- 7(5). Plants stoloniferous; sepals ascending; hypanthium ca $\frac{1}{2}$ to as long as sepals; herbage stipitate-glandular; leaves ciliate; petals yellow *S. flagellaris*
- Plants not stoloniferous; sepals spreading to reflexed or the petals white; hypanthium obsolete or very short; herbage not stipitate-glandular (or only the stem sparingly so); leaves glabrous or if ciliate then the petals white 8
- 8(7). Petals white; racemes often more than 3-flowered; leaves ciliate; sepals erect to spreading *S. bronchialis*
- Petals yellow when fresh; flowers mostly solitary; leaves not ciliate; sepals finally reflexed 9
- 9(8). Petals 4–5 mm long, short-clawed; sepals 2–3 mm long, glabrous; leaves 4–8 mm long, 0.5–1.5 mm wide; stems with minute stipitate glands, not pilose; plants 2–6 cm tall *S. chrysantha*
- Petals 7–10 (15) mm long, not clawed; sepals 4–5 mm long, often pilose; leaves often over 8 mm long and some over 1.5 mm wide; stems often rusty pilose; plants 6–20 cm tall *S. hirculus*

Saxifraga adscendens L. Wedge-leaf Saxifrage. Plants short-lived perennials, 3–10 cm tall, from a small simple caudex, strongly glandular-pubescent; leaves 5–15 mm long, sessile or gradually narrowed to a petiolelike base, entire, or 3 (5)-toothed or shallowly lobed at the apex, obovate; sepals about 1–2 mm long, usually reddish purple; petals white, about 3–6 mm long, narrowed abruptly to a claw; filaments slender; ovary inferior or nearly so; capsules 3.5–5 mm long. Alpine tundra and rocky slopes in the La Sal and Uinta mountains in Grand, San Juan, and Summit counties; northern Rocky Mountains, Cascades to Colorado, and Europe; 2 (0). Our material is referable to var. *oregonensis* (Raf.) Breit.

Saxifraga bronchialis L. Spotted Saxifrage. Plants (10) 13–15 cm tall, arising from a caudex with a taproot; caudex branches prostrate to ascending, clothed with densely imbricate

persistent leaves; flowering stems glandular-pubescent, with few to several alternate leaves; leaves 3–15 mm long, 1–3 mm broad, sessile, entire, leathery, elliptic to oblong or spatulate, setose-ciliate and spinulose-tipped; flowers showy, yellowish or whitish; sepals greenish, ovate, 2–3 mm long, erect to spreading, glabrous, not ciliate; petals whitish or yellowish, yellow- to red-spotted, 3–6 mm long, indistinctly 3-veined; stamens shorter to longer than the petals, the filaments subulate; ovary only slightly inferior; capsules 4–6 mm long. Open rocky slopes at ca 3050 to 3931 m in the La Sal Mountains in Grand and San Juan counties; Alaska and Yukon, south to Oregon, Idaho, and New Mexico; 9 (0). Our plants are apparently referable to var. *austromontana* (Wieg.) G. N. Jones.

Saxifraga caespitosa L. Tufted Saxifrage. [*S. caespitosa* ssp. *exaratooides* var. *purpurea* Engl. & Irmsch., type from the La Sal Mts.].

Plants 1–17 cm tall, arising from a caudex and a taproot; caudex branches prostrate to ascending, clothed with densely imbricate leaves; flowering stems glandular-pubescent, often densely so, with 1–several alternate leaves; basal leaves 3–15 mm long, 2–7 mm wide, with 3–5 (7) apical, triangular to lanceolate or narrowly oblong lobes, cuneate, glandular-ciliate, not spinulose-tipped; cauline leaves often entire; flowers solitary or 2–4, moderately showy; sepals often purplish, nearly linear to ovate, 1–2 mm long, erect, glandular-pubescent and ciliate; petals white, cream, or yellowish, 2–3 mm long, 3-veined; stamens shorter than the petals, longer than the sepals, the filaments subulate; ovary almost completely inferior; capsule 3–4 (7) mm long. Spruce and alpine tundra communities, fell fields, and rocky slopes at 2985 to 3990 m in the La Sal, Tushar, Uinta, and Wasatch mountains, in Beaver, Duchesne, Grand, Piute, Salt Lake, San Juan, Summit, and Utah counties; circumboreal, south to Nevada, Arizona, and New Mexico; 29 (0). Specimens from above 3660 m on Kings Peak have many entire basal leaves and have sometimes been confused with *S. adscendens*. Fresh petals of some plants (Franklin 955 BRY) are yellowish. Our plants seem to be referable to *var. minima* Blank.

Saxifraga cernua L. Nodding Saxifrage. Plants 6–15 cm tall, arising from fibrous roots; stems sparsely to densely glandular-villose, with several alternate leaves; basal leaves with petioles 0.5–3 cm long, the blades (3) 5- to 7-lobed, reniform, 4–15 mm long, 6–15 mm wide; cauline leaves becoming smaller, fewer lobed, and shorter petioled upward, at least the upper ones bearing usually purplish bulblets in the axils; flowers showy, solitary (rarely 2) at the apex of the inflorescence, the others replaced by bulblets; sepals green to dark reddish purple, ovate to lanceolate, 2.5–3 mm long, erect, sparsely to densely glandular, somewhat ciliate; petals white, 5–8 (12) mm long, 3- to 5-veined; stamens longer than the sepals, much shorter than the petals; ovary slightly if at all inferior; capsules rarely developing. Rocky places at 3445 to 3960 m in the Uinta and La Sal mountains, in Grand, San Juan, and Summit counties; circumboreal, south to New Mexico; 10 (0).

Saxifraga chrysantha Gray Golden Saxifrage. Plants 2–6 cm tall, arising from slender rhizomes, sometimes mat forming; stems glandular; leaves imbricate at the stem base and scattered upward, 4–8 mm long, 0.5–1.5 mm wide, narrowly spatulate to narrowly oblong, entire, glabrous or occasionally sparsely glandular; flowers solitary; sepals 2–3 mm long, strongly reflexed, glandular externally, green or purplish; petals 4–5 mm long, yellow; stamens longer than the sepals but shorter than the petals; ovaries slightly inferior; capsules 6–8 mm long, ovoid. Alpine tundra, fell fields, and rock stripes at 3415 to 3960 m in the Uinta Mountains in Duchesne and Summit counties; Wyoming south to New Mexico; 6 (0).

Saxifraga debilis Engelm. Pygmy Saxifrage. Plants 2–15 cm tall, arising from fibrous roots; stems usually glandular, rarely pilose; basal leaves sometimes with whitish or purple-tipped bulbils in the axils; petioles 0.5–6 cm long; leaf blades 3–15 (20) mm wide, mostly wider than long, reniform or orbicular, with 3–7 lobes; flowers solitary and terminal or 2 or 3 on naked or bracteate, slender pedicels, 0.5–5 mm long; sepals 1.5–2 mm long; petals 2–5 mm long, white; stamens exceeding the sepals, but shorter than the petals; ovaries only slightly inferior; capsules about 5–8 mm long. Alpine tundra, cirque basins, and Engelmann spruce communities, often near melting snowbanks at 2743 to 3960 m in Beaver, Daggett, Duchesne, Garfield, Grand, Iron, Piute, Salt Lake, San Juan, Summit, Tooele, Uintah, and Utah counties; British Columbia south to California, east to Montana and Arizona; 30 (i). Some plants from Kings Peak are rather densely pilose and have slightly shorter and relatively broader sepals than others from the state. These plants seem more like those from the northern Rocky Mountains and Cascades than others from the state.

Saxifraga flagellaris Willd. Flagellate Saxifrage. Plants 3–10 (12) cm tall, arising from slender rhizomes, and with naked flagellate stolons; stems erect, stipitate-glandular villose, with several cauline leaves; basal leaves 5–17 mm long, 1–5 mm broad, entire, cuneate-oblong to spatulate, setose-ciliate; cauline leaves similar to the basal ones

except becoming glandular-ciliate and smaller above; flowers 1 to few, showy; sepals greenish to reddish purple, oblong to lanceolate or ovate, 2.5–4.5 mm long, stipitate-glandular, the glands purplish; petals bright yellow, but faded in dried specimens, 6–12 mm long, 7- to 9-veined; stamens longer than the sepals, the filaments subulate; ovary only slightly to $\frac{1}{4}$ inferior; capsules 4–5 mm long. Alpine tundra at 3350 to 3962 m in the Uinta and La Sal mountains in Duchesne, Grand, San Juan, and Summit counties; circumboreal, south to Arizona and New Mexico; 7 (0).

Saxifraga hirculus L. Yellow Marsh Saxifrage. Plants 6–20 cm tall; flowering stems erect, brownish or yellowish tomentose, at least above, arising from a basal rosette with fibrous roots, with usually several cauline leaves; basal leaves 1.2–3.5 cm long, 1–3 (4) mm wide, entire, linear-ob lanceolate to spatulate, glabrous or glabrate; cauline leaves similar to the basal only smaller above; flowers 1–few, showy; sepals greenish to reddish, oblong to lanceolate, 2.5–5.5 mm long, spreading, glandular-villous to glabrate, ciliate; petals bright yellow, 7–12 mm long, 5- to 7-veined; stamens longer than the sepals, the filaments subulate; ovary only slightly inferior; capsules 7–12 mm long. Wet meadows in the Uinta Mountains in Daggett County; circumboreal, south to Colorado; 3 (2).

Saxifraga odontoloma Piper Brook Saxifrage. [*S. arguta* D. Don, misapplied]. Plants scapose, 16–78 cm tall, from rootstocks with fibrous roots; leaves all basal, glabrous or nearly so; petioles 1.2–23 cm long; blades 1–9.5 cm wide and about as long, orbicular to reniform, cordate or truncate at the base, coarsely dentate or crenate-dentate; scapes

glabrous below, glandular above; inflorescence a spreading cymose panicle, several flowered, stipitate-glandular; sepals 2–3 mm long, strongly reflexed in anthesis, purplish; petals 2.5–4 mm long, white, spreading; stamens equaling or exceeding the petals; capsules 5–9 mm long. Along streams, springlets, and about ponds and lakes, and in other moist sites in montane plant communities at 1830 to 3350 m in all Utah counties except Daggett, Davis, Kane, Millard, Morgan, Rich, Washington, Wayne, and Weber; Alaska to California, east to Alberta and New Mexico; 104 (ii).

Saxifraga rhomboidea Greene Diamondleaf Saxifrage. Plants scapose, 3–20 (30) cm tall, from short rootstocks and fibrous roots; leaves all basal; petioles 0.3–2.5 cm long, usually pilose-ciliate or fringed, rather broad and flat, gradually differentiated from the blade; blades 9–35 mm long, 3–20 mm wide, rhombic, obovate, or ovate, dentate or crenate to subentire, not lobed, glabrous or ciliate; inflorescence cymose-paniculate, mostly very congested, globose or headlike, glandular; flowers several to many; sepals 1–2 mm long, more or less triangular, not reflexed; petals 2–4 mm long, white; stamens longer than the sepals, subequal to the petals; capsules 4–6 mm long excluding the stylar beaks. Meadows in alpine tundra and sometimes in ponderosa pine, Douglas-fir, and spruce communities at 2075 to 3965 m in Beaver, Box Elder, Cache, Daggett, Duchesne, Garfield, Grand, Iron, Juab, Millard, Piute, Salt Lake, San Juan, Sevier, Summit, Tooele, Uintah, Utah, Washington, and Wayne counties; British Columbia to Colorado; 111 (iii).